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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/057,684	04/09/1998	HIROSHI HASEGAWA	BA-22580	6672
178	7590	08/30/2004	EXAMINER	
BUCKNAM AND ARCHER			DIAMOND, ALAN D	
1077 NORTHERN BOULEVARD			ART UNIT	
ROSLYN, NY 11576			PAPER NUMBER	

1753

DATE MAILED: 08/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/057,684

Applicant(s)

HASEGAWA ET AL.

Examiner

Alan Diamond

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2004 and 14 July 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 07/634,054.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Comments*

1. The Examiner acknowledges that the continuity date has been corrected.
2. The Examiner acknowledges receipt of the certified English of Japanese foreign priority document 2-121133. However, the copies of the certified English translations for Japanese foreign priority documents 1-341244, 1-341245, and 2-105772 have not been received. It is requested that copies of the certified English translations for Japanese foreign priority documents 1-341244, 1-341245, and 2-105772 be made of record in the instant application.
3. The rejection of claims 13 under 35 USC 12, first paragraph, has been overcome by Applicant's amendment thereof.
4. The objection to claims 7, 9, 11, and 16 because of informalities has been overcome by Applicant's amendment thereof.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamitis (U.S. Patent 2,807,155), in view of Midgley, Jr et al (Re. 19,265), and Slayton (U.S. Patent 4,178,765).

Williamitis teaches a fluid composition for a refrigerator, wherein the fluid composition contains a refrigerant such as disclosed in Midgley, Jr et al and, as the refrigerator oil, a pentaerythritol tetraester having the chemical formula given at col. 2, line 66 (see also col. 2, lines 23-56). Midgley, Jr et al is relied upon for showing the refrigerant can be a chlorine-free fluorocarbon (see the paragraph bridging pages 1 and 2 of Midgley, Jr et al). In said chemical formula at col. 2, line 66 of Williamitis, the R groups can be branched chain alkyl of preferably 6 to 10 carbon atoms (see the paragraph bridging pages 1 and 2 of Williamitis). Thus, based on this alkyl chain length, the use of 2-ethylhexanoic acid and 3,5,5-trimethylhexanoic acid to esterify the pentaerythritol is clearly within the scope of Williamitis' disclosure. Williamitis shows conventional refrigerator oils having pour points of  $-10^{\circ}\text{F}$  (i.e.,  $-23^{\circ}\text{C}$ ) and  $-35^{\circ}\text{F}$  (i.e.,  $-37^{\circ}\text{C}$ ) (see the table at the bottom of col. 3). A pour point not higher than  $-10^{\circ}\text{C}$ , e.g., of  $-20^{\circ}\text{C}$  to  $-80^{\circ}\text{C}$  is what one skilled in the art would seek to obtain for a refrigerator oil. Indeed, Slayton is relied upon for teach a pentaerythritol ester refrigerator oil having a pour point of  $-50^{\circ}\text{C}$  (see col. 4, lines 4-6). Williamitis teaches the limitations of the instant claims other than the difference which is discussed below.

Williamitis does not provide a specific example where 2-ethylhexanoic acid and 3,5,5-trimethylhexanoic acid are together used to esterify the pentaerythritol. However, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used 2-ethylhexanoic acid and 3,5,5-trimethylhexanoic acid together to esterify the pentaerythritol since the use of such acids to esterify the pentaerythritol are within the scope of Williamitis'

disclosure. Furthermore, in the absence of unexpected results, the selection of a molar ratio of 2-ethylhexanoic acid to 3,5,5-trimethylhexanonic acid, such as a 1:1 ratio in instant claim 3, would have been within the skill of an artisan with the expectation that a refrigerator oil would be obtained.

7. Claims 4, 6, 8, 9, 11, 12, 16, 17, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamitis in view of Midgley, Jr et al and Slayton as applied to claims 1-3 and 7 above, and further in view of Kohashi et al (JP 62-292895). JP 62-292895 is already of record in the PTO-892 mailed January 19, 1999 and is an English translation. Said English translation is referred to below.

Williamitis in view of Midgley, Jr et al and Slayton, as relied upon for the reasons recited above, teaches the limitations of claims 4, 6, 8, 9, 11, 12, 16, 17, and 21 other than the presence of the instant conventional oil, the instant additive, and 0.1 to 5% by weight of an epoxy compound in the fluid composition. Kohashi et al teaches that other oils, such as paraffinic mineral oils, naphthenic mineral oils, alkylbenzene oils, and polyolefin oils can be used together with its pentaerythritol ester for refrigerating machine oils (see pages 2-3 of said English translation). Kohashi et al also teaches the addition of 0.05 to 10 wt% of a glycidyl ester to the refrigerator oil so as to suppress the corrosion of metal components of the refrigerator apparatus and stabilize the oil (see page 3, lines 12-36). Kohashi et al also teaches that additives such as antioxidants and antiwear agents can be used together with the glycidyl ester (see page 4, lines 18-19). Kohashi et al exemplifies pentaerythritol esters (see Table 1 at page 6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to

Art Unit: 1753

have added the glycidyl ester of Kohashi et al to the refrigerator oil of Williamitis in view of Midgley, Jr et al and Slayton because said glycidyl ester suppresses the corrosion of metal components of the refrigerator apparatus and stabilizes the oil, as taught by Kohashi et al. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included an oil such as paraffinic mineral oil, naphthenic mineral oil, alkylbenzene oil, and polyolefin oil, and an additive such as antioxidants and antiwear agents, in the refrigerator oil of Williamitis in view of Midgley, Jr et al and Slayton because these are conventional materials that can be present with the refrigerator oil, as shown by Kohashi et al.

8. Claims 5, 10, 13-15, 18-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamitis in view of Midgley, Jr et al and Slayton, and further in view of Kohashi et al as applied to claims 4, 6, 8, 9, 11, 12, 16, 17, and 21 above, and further in view of JP 55-155093, herein referred to as JP '093.

Williamitis in view of Midgley, Jr et al and Slayton, and further in view of Kohashi et al, as relied upon for the reasons recited above, teaches the limitation of claims 5, 10, 13-15, 18-20, and 22, other than the presence of the instant phosphorus compound. JP '093 teaches that the addition of trimethyl phosphate to a pentaerythritol ester refrigerator oil helps to prevent corrosion (see the attached English abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the trimethyl phosphate additive of JP '093 in the refrigerator oil of Williamitis in view of Midgley, Jr et al and Slayton, and further in view of Kohashi so as to prevent corrosion, as taught by JP '093.

***Response to Arguments***

9. Applicant's arguments filed May 28, 2004 have been fully considered but they are not persuasive.

Applicant argues that "the refrigerants actually specified by Williamitis are Freon 11, Freon 12 and Freon 22 (Patent, Column 2, lines 27-29), which are chlorine-type fluorocarbon refrigerants." Applicant also argues that "[n]owhere in the Williamitis reference is there a hint or suggestion that other than the actually used Freon 11, Freon 12 or Freon 22 refrigerants could be used together with the pentaerythritol tetraester oil." However, this argument is not deemed to be persuasive because Williamitis is in now way limited to Freon 11, Freon 12 and Freon 22 for the refrigerant. Williamitis specifically teaches that "[t]he refrigerant used in the present invention preferably comprises a fluoro halo derivative of an aliphatic hydrocarbon of the character disclosed in the patent to Midgeley [Jr] et al., Re. 19,265." Midgley, Jr et al is relied upon for showing that the refrigerant can be a chlorine-free fluorocarbon (see the paragraph bridging pages 1 and 2 of Midgley, Jr et al).

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patents 6,666,985 and 6,774,093 are hereby made of record.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Diamond whose telephone number is 571-272-1338. The examiner can normally be reached on Monday through Friday, 5:30 a.m. to 2:00 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alan Diamond  
August 26, 2004

Alan Diamond  
Primary Examiner  
Art Unit 1753

